

Ole Pedersen

Professor

Freshwater Biology

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Curent positions and periods of leave

Professor, Department of Biology, University of Copenhagen (2017 and onwards)

Adjunct Professor, School of Biological Sciences, The University of Western Australia (2007 and onwards)

Affiliate Professor, Department of Biological Sciences, Florida Atlantic University

Member of the board of directors at Unisense A/S (2013 and onwards)

DANIDA-seconded faculty at AIT Bangkok, Thailand (2002-2005); long service leave from UCPH

International work and research experience

◆ DANIDA-seconded faculty at the Asian Institute of Technology (Thailand); Integrated Tropical Coastal Zone Management (2½ y)

◆ Supervision of MSc and PhD students in Bangladesh, Myanmar, Laos, Cambodia, Vietnam, Indonesia and the Philippines with visits during fieldwork and supervision of counter-part supervisors

◆ Research experience from the U.S., Australia, Japan, United Kingdom, Germany, Italy, Philippines (IRRI and UP), Thailand (AIT), Vietnam (IO Nha Trang, HCMCU and WWF), Laos (Mekong River Commission) and Tanzania

International collaboration

Since 2006, I have been Adjunct at the University of Western Australia (UWA) and more recently also Professor-at-Large at the Institute of Advanced Studies, UWA. These appointments have resulted in at least 1 visit per year and >50 co-authored papers with colleagues from UWA. I have also established a long-term collaboration with Nagoya University, Japan, with 6 productive visits to Prof Moto's lab in 2014-2018 and to Prof Nakazono's lab in 2017-2019. More recently, the Climate-smart African rice project that I am leading in East Africa has lead to extensive collaboration with IRRI and Sokoine University of Agriculture.

Management experience

I served as Deputy Head of Department from 2019 to 2022, and during the past 5 years, I have acted as principal investigator and grant executive on the following major projects (> 2 million DKK per project); funding body in brackets:

◆ Climate-smart African rice (Danida) 2020-2026

◆ Inducible barriers to radial O₂ loss in plant roots (DFF-FNU; EU Horizon 2020) 2018-2022

◆ Submergence tolerance of wheat (Villum Foundation) 2014-2017

Areas of research focus

◆ Flood tolerance of major crops such as rice, barley and wheat including their wild relatives

◆ Mechanisms of flood tolerance in natural wetland plants

◆ Functional plant surfaces (superhydrophobicity)

◆ Gas exchange across the diffusive boundary layer in aquatic plants and insects

◆ Aquatic plant eco-physiology with special emphasis on plants in oligotrophic lakes

◆ In situ instrumentation with particular emphasis O₂ and H₂S microelectrodes

h index of 46 calculated as n peer reviewed papers cited at least n times; source Google Scholar May 2023. m-quotient of 1.75 calculated as h divided by n career years since graduation subtracted 2 y of long service leave. More than 150 peer reviewed papers in international journals; more than 60 outreach publications in English, German, Chinese, Japanese and Danish (complete list of publications with PDFs available at www.flooding.dk) cited >7500 times (Google Scholar). Past five years (2018-2022): No. of peer-reviewed publications (43); No. of first author publications (7); No. of senior authorship publications (14).

Note: Google Scholar is used as source since many of the high impact papers are cited in reports by decision makers in breeding programs (crops) and management councils (restoration of seagrass meadows, streams and lakes) and these citations are not included in the ISI indices.

Tong S ... **Pedersen O** & Herzog M (2023) Responses of key root traits in the genus *Oryza* to soil flooding mimicked by stagnant, deoxygenated nutrient solution. *Journal of Experimental Botany* 74, 2112-2126. **I.F. 7.38**

Song Z, Zonta F, Peralta Ogorek LL, Bastegaard VK, Herzog M, Pellegrini E, **Pedersen O** (2023) The quantitative importance of key root traits for radial water loss under low water potential. *Plant and Soil* 482: 567-584. **I.F. 4.99**

Peralta Ogorek LL, Takahashi H, Nakazono M & **Pedersen O** (2023) The barrier to radial oxygen loss protects roots against hydrogen sulphide intrusion and its toxic effect. *New Phytologist* 238: 1825-1837. **I.F. 10.15**

Jiménez JC & **Pedersen O** (2023) Mitigation of greenhouse gas emissions from rice via manipulation of key root traits. *Rice* 16, 24. **I.F. 5.64**

Pedersen O, Nakayama Y, Yasue H, Kurokawa Y, Takahashi H, Floytrup AH, Omori F, Mano Y, Colmer TD, Nakazono M (2021) Lateral roots, in addition to the main axis of adventitious roots, form a barrier to radial oxygen loss in *Zea mays* and a chromosome segment introgression line in maize. *New Phytologist* 229, 94-105. **I.F. 10.15**

Pedersen O, Sauter M, Colmer TD, Nakazono M (2021) Regulation of root adaptive anatomical and morphological traits during low soil oxygen. *New Phytologist* 229, 42-49. **I.F. 10.15**

Peralta Ogorek LL, Pellegrini E, **Pedersen O** (2021) Novel functions of the root barrier to radial oxygen loss – radial diffusion resistance to H₂ and water vapour. *New Phytologist*, 10.1111/nph.17474. **I.F. 10.15**

Pedersen O, Revsbech NP, Shabala S. 2020. Microsensors in plant biology – in vivo visualization of inorganic analytes with high spatial and/or temporal resolution. *Journal of Experimental Botany* 71, 3941-3954. **I.F. 6.99**

Supervision of postdocs and PhD students

Currently, I am supervising 2 postdocs, 3 PhD students and 5 undergraduate students. Eight students have already completed their PhDs under my supervision and I have had visiting students and postdocs both in my laboratory in Copenhagen and during my visits to UWA as an adjunct. Moreover, several MSc and BSc students have completed their projects under my supervision. Recently, I have attracted fully funded CSC PhD students from China.